A revision of the time dilation effect in the special theory of relativity.

Autorzy

Janusz Drożdżyński

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Streszczenie

In this paper, it has been shown that some experimental confirmations for the so-called“time dilation effect” may be in a rational way explained on the basis of a thought experiment pre-sented in a previous paper [J. Droz˙dz˙yn´ski, Phys. Essays 26, 321 (2013)]. The performed analysishas proven, that in order to carry out a round trip of a laser pulse from the source to a perpendicularlocated mirror and back to the starting point, the laser source in motion of the spaceship with a con-stant speed must be pointed at an angle in the direction of movement; whereas at rest it should bedirected perpendicular to that axis. This means, that we have not to deal with a “time dilationeffect” but with two separate measurements of two separate laser signals, moving at two differentdistances. The ratio of the two time intervals is expressed by a somewhat different equation asstated by the Special Theory Relativity and possesses also a dissimilar meaning. It has been shownalso that it can be evaluated by the observer in motion by himself as well as that the phenomenonof a relativistic length contraction does not exist. On this basis, a quantitative relation between timeintervals of such oscillations in two reference frames, which are in motion with a different speedwith respect to the frame at absolute rest, has been received. The relation may be of somesignificance for the Global Positioning System (GPS). A rational explanation of the “movingclocks” experiments as well as the “time dilation effect” of muons is presented. The existenceof “paradoxes,” resulting from Special Relativity has been excluded. A new elucidation of thenull result in the Michelson–Morley experiment is presented. The analysis was based onclassical physics and is giving additional evidence for the erroneousness of the principle ofrelativity.

Słowa kluczowe

Special Theory of Relativity, Falsity of the Principle of Relativity, Thought Experiments, Revision of the Michelson–Morley experiment, Revision of Time Dilation Effects, Explanation of Moving Clocks Experiments, “Time dilation effect” of Muons, Paradoxes.

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